Listing of claims:

1. (Canceled)

2. (Previously presented) A road surface condition change estimation apparatus that is mounted on an automobile and estimates a change in condition of a road surface where said automobile runs, said road surface condition change estimation apparatus comprising:

a rotation angular acceleration measurement module that measures a rotation angular acceleration of a drive shaft, which is mechanically linked to drive wheels of said automobile; and

a condition change estimation module that estimates the change of the road surface condition, based on a variation in period of a time change of the measured rotation angular acceleration that increases to or over a predetermined reference value.

3. (Original) A road surface condition change estimation apparatus in accordance with claim 2, wherein said condition change estimation module estimates the change of the road surface condition, in response to a variation in period of a time change of the measured rotation angular acceleration at or over a predetermined rate.

4. (Original) A road surface condition change estimation apparatus in accordance with claim 3, wherein said condition change estimation module estimates an abrupt increase in friction coefficient on the road surface, when the period of the time change of the measured rotation angular acceleration in an opposite peak detected immediately after a first peak, which appears after an increase of the rotation angular acceleration to or over a predetermined reference value, is shorter than the period of the time change in the first peak by or over the predetermined rate.

5. (Withdrawn) A road surface condition change estimation apparatus in accordance with claim 2, wherein said condition change estimation module estimates the change of the road surface condition, based on a first peak value detected after an increase of the measured rotation angular acceleration to or over a predetermined

reference value and an opposite second peak value detected immediately after the first peak value.

6. (Withdrawn) A road surface condition change estimation apparatus in accordance with claim 5, wherein said condition change estimation module estimates the change of the road surface condition, in response to a variation of an absolute value of the second peak value relative to an absolute value of the first peak value by or over a predetermined rate.

7. (Withdrawn) A road surface condition change estimation apparatus in accordance with claim 6, wherein said condition change estimation module estimates an abrupt increase in friction coefficient on the road surface, when the absolute value of the second peak value is greater than the absolute value of the first peak value by or over the predetermined rate.

8. (Withdrawn) A road surface condition change estimation apparatus in accordance with claim 2, wherein said condition change estimation module estimates the change of the road surface condition, based on a second peak value of the measured rotation angular acceleration detected after an increase to or over a predetermined reference value.

9. (Withdrawn) A road surface condition change estimation apparatus in accordance with claim 8, wherein said condition change estimation module estimates an abrupt increase in friction coefficient on the road surface, when an absolute value of the second peak value is not less than a preset level.

10. (Withdrawn) An automobile, comprising:

a motor that outputs power to a drive shaft, which is mechanically linked to drive wheels of said automobile;

a rotation angular acceleration measurement module that measures a rotation angular acceleration of the drive shaft;

a condition change estimation module that estimates a change of a road surface condition corresponding to a variation in measured rotation angular acceleration; and

a drive control module that drives and controls said motor to regulate a torque level output to the drive shaft according to a driver's operation and a vehicle driving state, while driving and controlling said motor in response to estimation of the change of the road surface condition by said condition change estimation module, to restrict the torque level output to the drive shaft for a preset time period.

11. (Withdrawn) An automobile in accordance with claim 10, wherein said drive control module drives and controls said motor in response to estimation of the change of the road surface condition by said condition change estimation module, to restrict the torque level output to the drive shaft to a torque limit value, which is set corresponding to a peak value of the rotation angular acceleration measured by said rotation angular acceleration measurement module.

12. (Withdrawn) An automobile in accordance with claim 11, wherein said condition change estimation module estimates the change of the road surface condition, in response to a variation in period of a time change of the measured rotation angular acceleration that increases to or over a predetermined reference value at or over a predetermined rate.

13. (Withdrawn) An automobile in accordance with claim 11, wherein said condition change estimation module estimates the change of the road surface condition, in response to a variation of an absolute value of an opposite second peak value detected immediately after a first peak value re lative to an absolute value of the first peak value detected after an increase of the measured rotation angular acceleration to or over a predetermined reference value by or over a predetermined rate.

14. (Withdrawn) An automobile in accordance with claim 11, wherein said condition change estimation module estimates the change of the road surface condition, when an absolute value of a second peak value of the measured rotation angular

acceleration detected after an increase to or over a predetermined reference value is not less than a preset level.

15. (Withdrawn) A road surface condition change estimation method that estimates a change in condition of a road surface where said automobile runs, said road surface condition change estimation method comprising the steps of:

(a) measuring a rotation angular acceleration of a drive shaft, which is mechanically linked to drive wheels of said automobile; and

(b) estimating a change of a road surface condition, in response to a variation in period of a time change of the measured rotation angular acceleration that increases to or over a predetermined reference value at or over a predetermined rate.

16. (Withdrawn) A road surface condition change estimation method that estimates a change in condition of a road surface where said automobile runs, said road surface condition change estimation method comprising the steps of:

(a) measuring a rotation angular acceleration of a drive shaft, which is mechanically linked to drive wheels of said automobile; and

(b) estimating a change of a road surface condition, in response to a variation of an absolute value of an opposite second peak value detected immediately after a first peak value relative to an absolute value of the first peak value detected after an increase of the measured rotation angular acceleration to or over a predetermined reference value by or over a predetermined rate.

17. (Withdrawn) A road surface condition change estimation method that estimates a change in condition of a road surface where said automobile runs, said road surface condition change estimation method comprising the steps of:

(a) measuring a rotation angular acceleration of a drive shaft, which is mechanically linked to drive wheels of said automobile; and

(b) estimating a change of a road surface condition, when an absolute value of a second peak value of the measured rotation angular acceleration detected after an increase to or over a predetermined reference value is not less than a preset level.